

## 西藏筱竹属一新种和错那箭竹补充描述

<sup>1,2</sup>易同培 <sup>1</sup>史军义 <sup>2</sup>马丽莎

<sup>1</sup>(中国林业科学研究院西南花卉研究开发中心 昆明 650224)

<sup>2</sup>(四川农业大学都江堰分校 四川都江堰 611830)

## A new species of *Thamnocalamus* and supplementary description for *Fargesia grossa* from Xizang, China

<sup>1,2</sup>YI Tong-Pei <sup>1</sup>SHI Jun-Yi <sup>2</sup>MA Li-Sha

<sup>1</sup>(Southwest Flower Research Center, Chinese Academy of Forestry, Kunming 650224, China)

<sup>2</sup>(Duijiangyan Campus, Sichuan Agricultural University, Duijiangyan, Sichuan 611830, China)

**Abstract** *Thamnocalamus unispiculatus* Yi & J. Y. Shi, a new species of the Bambusoideae from southern Xizang, China, is described and illustrated. It is the first flowering and fruiting species of *Thamnocalamus* collected in China. It is distinguished from other species of *Thamnocalamus* by each spathe enclosing one spikelet and stigmas 2. The supplementary description of flowers and fruits of *Fargesia grossa* Yi was also given.

**Key words** *Thamnocalamus*, *Thamnocalamus unispiculatus* Yi & J. Y. Shi, new species, *Fargesia grossa*, supplement, Xizang, China.

**摘要** 发表了产于西藏南部的筱竹属*Thamnocalamus*一新种, 它被命名为牛色玛*T. unispiculatus* Yi & J. Y. Shi; 此乃我国首次采集到的筱竹属有花竹种。新种以每佛焰苞内仅具1枚小穗, 柱头2枚可以区别于属内其他种。此外, 还补充描写了错那箭竹*Fargesia grossa*的花、果特征。

**关键词** 筱竹属; 牛色玛; 新种; 错那箭竹; 补充; 西藏; 中国

本文第一作者于2006年8月赴西藏南部为《中国竹类》拍摄照片, 发现从海拔3750 m的聂拉木县到海拔2400 m左右的樟木口岸, 垂直梯度从高到低分布着4种高山竹种: 打母牛*Fargesia* sp.、牛色玛*Thamnocalamus unispiculatus* Yi & Y. J. Shi、那下(颈鞘箭竹*Fargesia collaris* Yi)和卡丁玛(樟木箭竹*F. ampullaris* Yi)。调查中发现这一线牛色玛分布很广, 面积也最大, 有个别植株开花和结果, 从而采到了完整的营养体和花果枝标本。由于该竹种的简单总状花序是侧生于花枝上部各节上, 且花序基部只含有1片佛焰苞, 因而确认为属特产于喜马拉雅地区的筱竹属*Thamnocalamus* Munro竹种。经进一步与筱竹属其他种比较研究后, 发现本种单个佛焰苞内仅具1枚小穗, 柱头2, 是筱竹属已知种不具备的独有特征, 所以确定为新种。途经拉萨时, 在广产竹子的勒布地区见到了正在开花结实的错那箭竹*F. grossa* Yi。西藏约产12种箭竹属*Fargesia* Franch.植物, 采到该属的花果枝标本还是第一次, 从而予以补充描述。

牛色玛(藏语译音, 西藏聂拉木) 新种 图1, 2

*Thamnocalamus unispiculatus* Yi & J. Y. Shi, sp. nov. Figs. 1, 2

Species unispiculis in quaque spatha et stigmatibus 2 a congeneribus diversa.

Rhizoma sympodiale, collum 1.5–4(5) cm longum, 1–2 cm diam. Culmi caespitosi, 3–5 m alti et 1–1.5(2) cm diam., apice erecti; internodiis cylindricis sed complanatis vel minute



图1 牛色玛 A, 地下茎及秆基部; B, 秆之一节, 示秆芽; C, 秆之一节, 示分枝; D, 秆箨; E, 具叶小枝; F, 花枝; G, 花枝的一部分, 示佛焰苞内的1枚总状花序(仅含1小穗); H, 小穗; I, 外稃; J, 内稃; K, 鳞被; L, 雄蕊; M, 雌蕊; N, 颖果。(杨林根据易同培06053号标本绘)

Fig. 1. *Thamnocalamus unispiculatus* Yi & J. Y. Shi. A, rhizome with culm bases; B, a node of culm showing its bud; C, a node of culm showing its branching; D, culm-leaves; E, leafy branch; F, flowering branch; G, a part of flowering branch showing a raceme in spathe (with solitary spikelet); H, spikelet; I, lemma; J, palea; K, lodicules; L, stamens; M, pistil; N, caryopsis. Drawn by L. Yang from T. P. Yi 06053.



图2 牛色玛 A. 地下茎及秆基部。B. 笋。C. 竹丛。D. 节间和节上分枝。E. 开花竹株。F. 开花竹林。G. 秆芽。H. 花枝。I. 生境。  
Fig. 2. *Thamnocalamus unispiculatus* Yi & J. Y. Shi. A, Rhizome with culm bases. B, Bamboo shoot. C, Bamboo thicket. D, Internode with branching. E, Flowering bamboos. F, Flowering bamboo stand. G, Culm bud. H, Flowering branch. I, Habitat.

sulcatis ad basim lateris ramigeni, (6)20–25(30) cm longis, viridibus, juventute dense farinosis, glabris, nitidis, lingo 2.5–4(5) mm crasso, medullis obtrititis; nodi vaginarum primo luteolo-brunneo-setulosi vel glabri, prominentes; nodi culmi leviter prominentes, primo saepe purpurei; intranodiis 3–4 mm altis. Gemmae trigono-longo-ovatae, graciles, adpressa. Rami 1–5 in quoque nodo, 15–45 cm longi, 1–2 mm crassi, fere horizontales vel patentes. Vaginae culmorum caducae, oblongae, coriaceae, longitudine circ. 1/2 internodii parte aequantia, apice breviter triangulatae, dorso cinereo-luteolo-tuberculato-hirsutae, margine dense cinereo-luteolo-ciliatae; auriculae nullae, setae orales 3–5, erectae, cinereo-luteolae, usque 4 mm longae, facile deciduae; ligulae oblique truncatae, oblique arcuatae vel truncatae, vix 1 mm altae, luteolo-strigosae, dense ciliatae; laminae erectae in culmis infernis, superne reflexae, triangulatae vel lineari-lanceolatae, 0.8–3.3 cm longae, 2–4 mm latae, glabrae, integrae. Folia 3–6 in quoque ramulo; vaginae viridulae vel purpureae, glabrae, haud ciliatae; auriculae nullae, setae orales 1–3, saepe superne 3–5-fissae, facile deciduae; ligulae truncatae, purpureae, circ. 0.5 mm altae, primo ciliatae; petioli 1–1.5 mm longi; laminae lineari-lanceolatae, 2.5–7.2 cm longae, 3.5–7 mm latae, basi cuneatae, glabrae, subtus chloroticae, nervis secundariis (1)2-jugis, nervillis transverses rectangulari-longo-tessellatis, margine serrulatae. Turiones Junio germinantes.

Rami florales aphylli, graciles, saepe basi spathaceo-vaginati, prophyllis. Racemi axillares in quoque nodo rami floralis et intra unispatham; unispicula in quaque spatha; spatha 2–2.7 cm longa, 4–6 mm lata et internodio multo longiore, purpurea, glabra, folio reducto ad apicem. Pedicelli circ. 1 mm longi, glabri, complanati ad latem rachillae proximae; spiculae 5–6-florae, 2.5–3.2 cm longae, leviter compressae, chloroticae, flosculus apicis depauperatus; rhachilla articuli 2–3 mm longi, glabri, complanati; glumae 0–2, glabrae, angusto-longo-lanceolatae, apice gracili-longo-acuminatae, prima 8–10 mm longa, 1.5–2 mm lata, 5-nervis, secunda 8.5–11 mm longa, 1.8–2.3 mm lata, 7-nervis; lemma lanceolatum, glabrum, apice gracili-longo-acuminatum, 1–1.5 cm longum, (5)7–9-nervis; palea angusta, 0.5–1 cm longa, apice bicuspidate, in carinis breviter ciliata, inter carinam 2-nervis, in quoque latere 2-nervis; lodiculae 3, lanceolatae, recessim parviores, circ. 1.5 mm longae, brevissimo ciliatae; stamina 3, antheris purpureis, 5–8 mm longis; ovarium ellipticum, glabrum, circ. 1 mm longum, stylis 1, stigmata 2, plumosa. Caryopsis lineari-oblonga, purpurea, laevis, 6–7 mm longa et 1–1.5 mm diametro, ventraliter canaliculata, stylo persistenti; endospermiis albis. Fl. et fr. Aug.

**China. Xizang** (西藏): Nyalam (聂拉木), alt. 2650–3300 m, under secondary forest or in pure forest, 2006-08-13, *T. P. Yi* (易同培) 06053 (holotype, SIFS=SAUD).

地下茎合轴型, 秆柄长1.5–4(5) cm, 直径1–2 cm。秆丛生, 高3–5 m, 直径1–1.5(2) cm, 梢端直立; 节间圆筒形, 但在分枝一侧下部扁平或具小沟槽, 长(6)20–25(30) cm, 绿色, 幼时密被白粉, 无毛, 平滑, 秆壁厚2.5–4(5) mm, 髓锯屑状; 箨环隆起, 初时被淡黄褐色小刺毛或无毛; 秆环稍隆起, 初时常为紫色; 节内高3–4 mm。秆芽三棱状长卵形, 细瘦, 贴生。秆每节分枝1–5枚, 几平展或斜展, 长15–45 cm, 粗1–2 mm, 几平展或斜展。箨鞘早落, 长约为节间长度的1/2, 革质, 长圆形, 先端短三角形, 背面被灰黄色瘤基刺毛, 边缘密生灰黄色纤毛; 箨耳缺失, 鞘口缝毛3–5枚, 灰黄色, 直立, 长达4 mm, 易掉落; 箨舌斜截平形、斜弧形或截平形, 高不及1 mm, 被灰黄色小硬毛, 边缘密生纤毛; 箨片在秆下部者直立, 上部者外翻, 三角形或线状披针形, 长0.8–3.3 cm, 宽2–4 mm, 无毛, 全缘。小枝具叶3–6枚; 叶鞘淡绿色或紫色, 无毛, 边缘无纤毛; 叶耳缺失, 鞘口缝毛1–3枚, 褐色或淡褐色, 每枚常在中部分裂为3–5枚细缝毛, 易脱落; 叶舌紫色, 截平形, 高约0.5 mm, 边缘初时具缝毛; 叶柄长1–1.5 mm, 无毛; 叶片线状披针形, 长2.5–7.2 cm, 宽3.5–7 mm, 纸质, 先端渐尖, 基部楔形, 无毛, 下面灰绿色, 次脉(1)2对, 小横脉组成长

方形, 边缘具小锯齿而粗糙。笋期6月。

花枝无叶, 纤细, 常在基部具1枚先出叶和佛焰苞状叶鞘。总状花序生于花枝上部各节的1枚大型佛焰苞内, 其佛焰苞远较节间为长, 长2–2.7 cm, 宽4–6 mm, 紫色, 无毛, 顶端具1枚缩小叶, 内面仅包藏1枚小穗; 小穗柄长约1 mm, 向轴面扁平, 无毛; 小穗含5–6朵小花, 长2.5–3.2 cm, 稍两侧压扁, 淡绿色, 顶端小花不孕; 小穗轴节间近轴面扁平, 无毛, 长2–3 mm; 颖片0–2枚, 无毛, 狭长披针形, 先端细长渐尖, 第一颖长8–10 mm, 宽1.5–2 mm, 具5脉, 第二颖长8.5–11 mm, 宽1.8–2.3 mm, 具7脉; 外稃披针形, 长1–1.5 cm, 无毛, 先端细长渐尖, 具(5)7–9脉; 内稃狭窄, 长0.5–1 cm, 先端2齿裂, 脊上具纤毛, 脊间具2脉, 脊外每侧各具2脉; 鳞被3, 膜质, 披针形, 后面1片较小, 长约1.5 mm, 边缘具很短的纤毛; 雄蕊3, 花药紫色, 长5–8 mm; 子房椭圆形, 长约1 mm, 无毛, 花柱1, 柱头2, 羽毛状。颖果线状长圆形, 紫色, 平滑, 长6–7 mm, 直径1–1.5 mm, 有腹沟, 先端具宿存花柱; 胚乳白色。花期、果期8月。

本种每一佛焰苞内仅有1枚小穗, 柱头2, 明显不同于筱竹属其他种。

本种为高山地区重要水土保持竹种。

错那箭竹 颇热(藏语译音, 西藏错那) 图3, 4

**Fagesia grossa** Yi in Journ. Bamboo Res. 2 (2): 35, pl. 7. 1983; et in Fl. Xizang. 5: 26, pl. 11. 1987; et in Fl. Reip. Pop. Sin. 9 (1): 453, pl. 127: 13, 14. 1996; et in Fl. China 22: 91. 2006. Figs. 3, 4

Paniculae terminatae, (4)8–11 cm longae, sparse dispositae, multispathas instructae in base; pedicelli graciles, saepe sinuate flexuosi, viridi-purpurei, glabri vel primo rarissimo pilosi, 4–20 mm longi, in basi bractea parva nonnunquam vestiti; spiculae 6–8-florae, 2.5–4.5 cm longae, viridi-purpureae vel purpureae, leviter compressae; rhachilla articuli 3–4 mm longi, complanati, albo-pubescentes; glumae 2, glabrae, apice setoso-acuminatae, prima 3–4 mm longae, 3–5(7)-nervis, secunda 6–7 mm longae, 7-nervis; lemma ovato-lanceolatum, 8–15 mm longum, pubescens, 7–9-nervis, apice setoso-acuminatum, albo-pilosum ad fundum, ciliatum; palea 7–10 mm longa, apice bifissa, supra bicarinam ciliata; lodiculae 3, lanceolatae, circ. 1 mm longae, ciliatae; stamina 3, antheris flavis, circ. 4 mm longis; ovarium ellipticum, circ. 1 mm longum, stylus 1, stigmata 3, plumosa. Caryopsis lineari-oblonga, purpurea, nitida, 6–7 mm longa, circ. 1.5 mm diam., a ventre canaliculata, stylus persistens. Turiones Junio germinantes. Fl. Jun., Fr. Jul. –Aug.

**China. Xizang** (西藏): Cona (错那), Lebu (勒布), alt. 2300–3000 m, in pure forest or under forest, 2006-08-17, *T. P. Yi* (易同培) 06054 (SIFS=SAUD).

圆锥花序顶生, 长(4)8–11 cm, 疏松排列, 基部具一组稍扩大成佛焰苞的叶鞘; 小穗柄纤细, 常呈波状曲折, 绿紫色, 无毛或初时偶见疏柔毛, 长4–20 mm, 柄下方有时托有1片小型苞片; 小穗含6–8朵小花, 长2.5–4.5 cm, 绿紫色或紫色, 稍两侧压扁; 小穗轴节间长3–4 mm, 扁平, 被白色柔毛; 颖片2, 无毛, 先端刚毛状渐尖, 第一颖长3–4 mm, 具3–5(7)脉, 第二颖长6–7 mm, 具7脉; 外稃卵状披针形, 长8–15 mm, 被微毛, 具7–9脉, 先端刚毛状渐尖, 基盘被白色柔毛, 边缘具纤毛; 内稃长7–10 mm, 先端2齿裂, 脊上部被纤毛; 鳞被3, 披针形, 长约1 mm, 边缘具纤毛; 雄蕊3, 花药黄色, 长约4 mm; 子房椭圆形, 长约1 mm, 花柱1, 柱头3, 羽毛状。颖果线状长圆形, 长6–7 mm, 直径约1.5 mm, 紫色, 平滑, 有光泽, 有腹沟, 具宿存花柱。笋期6月; 花期6月, 果期7–8月。

2006年本竹全面开花, 竹林大面积死亡, 种子更新成林需要时日。

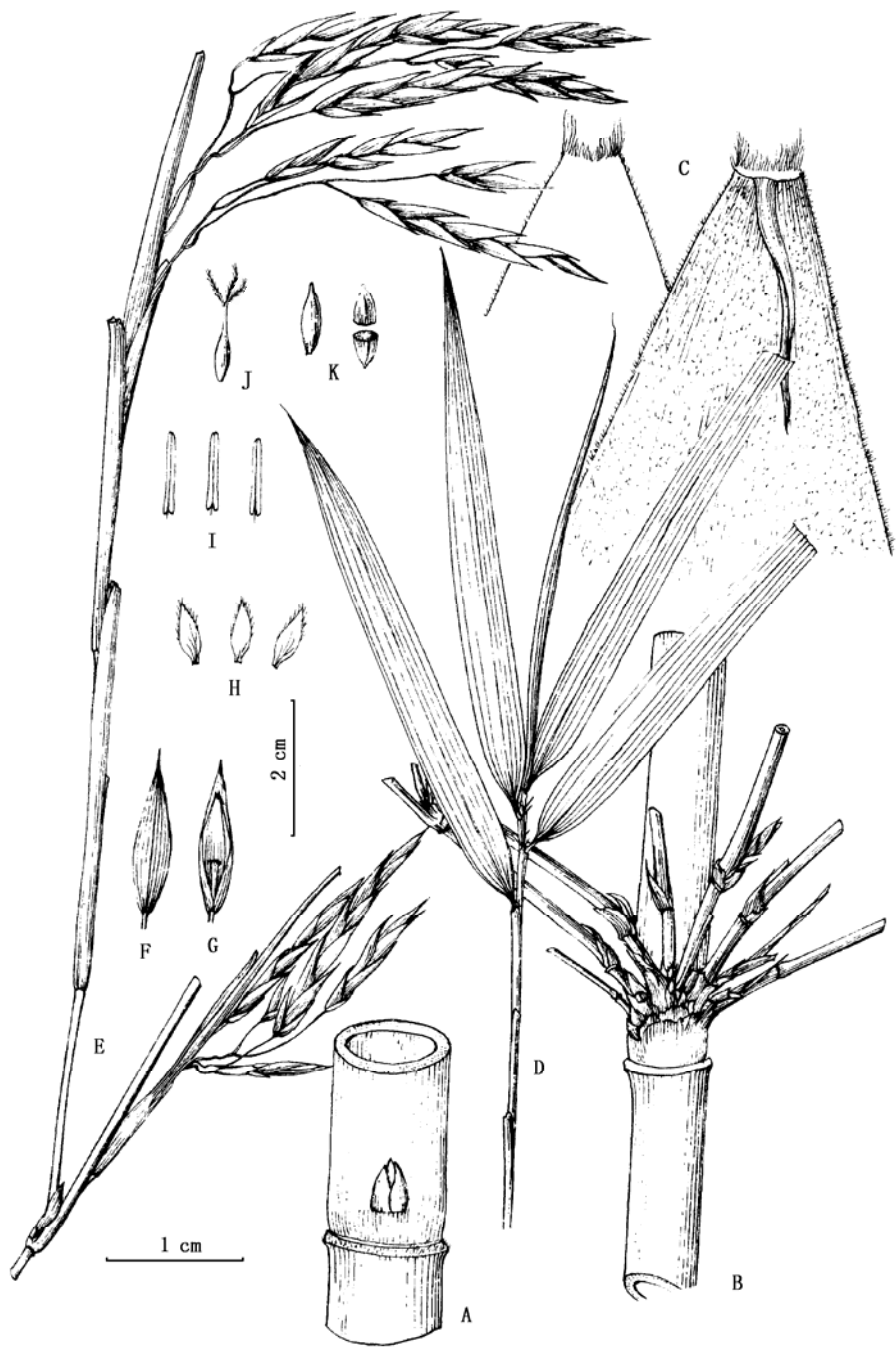


图3 错那箭竹 A, 秆之一节, 示秆芽; B, 秆之一节, 示分枝; C, 秆箨; D, 具叶小枝; E, 花枝; F, 小花背面; G, 小花腹面; H, 鳞被; I, 雄蕊; J, 雌蕊; K, 颖果。(杨林根据易同培06054号标本绘)  
Fig. 3. *Fargesia grossa* Yi. A, a node of culm showing its bud; B, a node of culm showing its branching; C, culm-leaves; D, leafy branchlet; E, flowering branch; F, dorsal view of the floret; G, ventral view of the floret; H, lodicules; I, stamens; J, pistil; K, caryopsis. Drawn by L. Yang from T. P. Yi 06054.



图4 错那箭竹 A. 竹丛。B. 秆之一节，示秆芽。C, D. 花枝。E. 开花竹林。  
Fig. 4. *Fargesia grossa* Yi. A, Bamboo thicket. B, A node of culm showing its bud. C, D, Flowering branch. E, Flowering bamboo stand.